

What is claimed is:

1. A medication management system, comprising:

a medical device adapted to perform a medication order prescribed
5 for a patient;

a medication management computer associated with the medical
device;

first input means for conveying a patient-specific prescribed
medication order information to the medication management
10 computer;

second input means for reading and inputting machine-readable
delivery information including patient-specific, drug
container specific, and medical device specific information
from the patient, drug container, and medical device

15 respectively into the medication management computer; and
the medication management computer including a processing unit for
comparing the information from the first input means to the
information from the second input means and generating an
alarm if the information from the first input means does not
20 match the information from the second input means.

2. The system of claim 1, wherein the machine readable delivery
information includes caregiver specific information from the
caregiver and the medication management computer processing unit
25 compares the caregiver specific information to a predetermined
list of authorized caregivers who are authorized to administer
medication to the patient.

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3. The system of claim 1, wherein the alarm comprises an alarm message that includes a description of the information that did not match between the first input means and the second input means.

5 4. The system of claim 1, wherein the medication management computer processing unit downloads a device medication order to the medical device and generates the alarm at the medical device.

10 5. A method for administering a medication to a patient, comprising the steps of:

electronically inputting a patient-specific medication order information into a medication management computer containing clinical decision support rules and associated with a medical device;

15 electronically inputting delivery information including patient-specific, drug container specific and medical device specific information into the medication management computer;

20 comparing the patient-specific medication order information with the delivery information; and

alerting a caregiver if any of the clinical decision support rules are violated.

25 6. The method of claim 5, further comprising downloading a device specific medication order to the medical device if the patient-specific medication order information and the delivery information match.

30 7. A medication management system, for use with an information system in a hospital environment and first and second input means; wherein the first input means delivers a medication order prescribed for a patient to the information system; and wherein

the second input means inputs machine-readable patient-specific, drug container specific, caregiver specific and medical device specific delivery information from the patient, drug container, caregiver and medical device respectively; comprising:

5 a medical device adapted to perform a medication order prescribed for a patient;

a medication management unit adapted for electronic communication with the information system, the medical device and the second input means, the medication management unit having a
10 processing unit and a storage medium coupled to the processing unit, the storage medium containing programming code executed by the processing unit to receive the delivery information from the second input means, request a medication order from the information system based on the delivery information from
15 the second input means, receive the medication order from the information system, and send delivery programming code to the medical device based on the medication order;

the medical device having a processor and a memory coupled to the processor, the memory containing programming code executed
20 by the processor to receive and execute the delivery programming code to perform a medication order prescribed for a patient; and

wherein the medical device receives delivery information electronically only through the medication management unit.

25 8. The system of claim 7, wherein the delivery information is input in any order into the second input means.

9. The system of claim 7, wherein the medication management unit programming code establishes a patient-specific rule set for the delivery programming code.

10. The system of claim 7, wherein the patient-specific rule set includes at least one hard limit on dosage that can not be overridden by the local caregiver unless authorized by a supervisor.

5 11. The system of claim 7, wherein the patient-specific rule set includes at least one soft limit on dosage that can be overridden by the local caregiver.

12. The system of claim 10, wherein the patient-specific rule set includes at least one soft limit on dosage that can be overridden
10 by the local caregiver.

13. The system of claim 10, wherein the overrides are recorded by the medical device and communicated to the MMU.

14. The system of claim 11, wherein the overrides are recorded by the medical device and communicated to the MMU.

15 15. The system of claim 12, wherein the overrides are recorded by the medical device and communicated to the MMU.

16. The system of claim 12, wherein the medication management unit programming code orders the medical device to adjust at least one of the hard and soft dosage limits in the delivery programming code
20 based on updated patient-specific information.

17. The system of claim 16, wherein the medication management unit generates an alert message if the delivery programming code violates any parameter of the adjusted hard and soft dosage limits.

18. The system of claim 16, wherein the medication management unit
25 is in electronic communication with a monitoring device to receive the updated patient-specific information.

19. The system of claim 16, wherein the medication management unit is in electronic communication with a lab and receives lab results

including the updated patient-specific information.

20. The system of claim 9, wherein the medication management unit programming code contains a plurality of clinical support decision rules and generates an alert if the order violates one of the
5 plurality of clinical support decision rules.

21. The system of claim 7, wherein the information system is a hospital information system and the hospital information system, first input means, second input means, medical device, and medication management unit are separate components.

10 22. The system of claim 7, wherein the information system is a pharmacy information system and the pharmacy information system, first input means, second input means, medical device, and medication management unit are separate components.

15 23. The system of claim 7, wherein the medication management unit modulates the current medication order being delivered based on patient specific information, laboratory results, etc.

24. The system of claim 21, wherein at least one of the separate components includes means for communicating wirelessly with the other separate components.

20 25. The system of claim 22, wherein at least one of the separate components includes means for communicating wirelessly with the other separate components.

25 26. A medication management system, for use with an information system in a hospital environment and first and second input means; wherein the first input means delivers a medication order prescribed for a patient to the information system; and wherein the second input means inputs machine-readable patient-specific, drug container specific, caregiver specific and medical device specific delivery information from the patient, drug container,

caregiver and medical device respectively; comprising:

a medical device adapted to perform a medication order prescribed for a patient;

5 a medication management unit adapted for electronic communication with the information system, the medical device and the second input means, the medication management unit having a processing unit and a storage medium coupled to the processing unit, the storage medium containing programming code executed by the processing unit to receive the delivery information from the second input means, request a medication order from the information system based on the delivery information from the second input means, receive the medication order from the information system, and send delivery programming code to the medical device based on the medication order;

15 the medical device having a processor and a memory coupled to the processor, the memory containing programming code executed by the processor to receive the delivery programming code for a medication order prescribed for a patient; and

20 wherein the medical device programming code permits the medical device to perform a medication order prescribed for a patient only after a caregiver has validated the delivery programming code data.

27. The system of claim 26, wherein the medical device programming code permits the medical device to perform a medication order prescribed for a patient only after a caregiver has validated the delivery programming code data at the medical device.

28. The method of claim 26, wherein the medical device programming code permits the medical device to perform a medication order prescribed for a patient only after a caregiver has validated the delivery programming code data at the medical device and at the

second input means.

29. The system of claim 26, wherein the medical device programming code permits the medical device to perform a medication order prescribed for a patient only after a caregiver has validated the
5 delivery programming code data at a computer remote from the medical device.

30. A method for delivering programming code to perform a medication order prescribed for a patient to a medical device, comprising:

10 delivering a medication order prescribed for a patient to the information system via a first input means;

inputting machine-readable patient-specific, drug container specific, caregiver specific and medical device specific delivery information from the patient, drug container,
15 caregiver and medical device respectively, to a second input means;

receiving the delivery information from the second input means at a medication management unit;

20 requesting an order from an information system based on the delivery information from the second input means at the medication management unit;

receiving an order from the information system at the medication management unit;

25 sending a delivery programming code to the medical device based on the order at the medication management unit;

receiving and executing the delivery programming code at the medical device to perform a medication order prescribed for a patient; and

wherein the medical device receives delivery information
electronically only through the medication management unit.

31. The method of claim 30, further comprising the step of
permitting the medical device to perform a medication order
5 prescribed for a patient only after a caregiver has validated the
delivery programming code data at the medical device.

32. A medication management system, for use with a information
system and first and second input means; wherein the first input
means delivers a medication order prescribed for a patient to the
10 information system; and wherein the second input means inputs
machine-readable patient-specific, drug container specific, and
medical device specific delivery information from the patient,
drug container, and medical device respectively; comprising:

a medical device adapted to perform a medication delivery order
15 based upon a medication order prescribed for a patient; and

a medication management unit adapted for electronic communication
with the information system, the medical device and the second
input means, the medication management unit having a
processing unit and a storage medium coupled to the processing
20 unit, the storage medium containing programming code executed
by the processing unit to receive the delivery information
from the second input means, compare the delivery information
with an expert rule set to determine if there is drug-drug
incompatibility, and generate an alarm where drug-drug
25 incompatibility is found.

33. The system of claim 32, wherein the medication management unit
programming code determines if there is drug-drug incompatibility
between two separate medication delivery orders for concurrent
delivery to the patient.

34. The system of claim 33, wherein the medication management unit

programming code requires sequential delivery of the two separate medication delivery orders where drug-drug incompatibility has been determined.

5 35. The system of claim 32, wherein the medication management unit programming code determines if there is drug-drug incompatibility between two separate medication delivery orders prescribed for delivery in a given time sequence for the patient.

10 36. The system of claim 32, wherein the medication management unit programming code requires a time delay in delivery for one of the two separate medication delivery orders where drug-drug incompatibility has been determined.